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Docket No. 66638-41381

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICECERTIFICATE OF FACSIMILE TRANSMISSION

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Clyde L. Smith
Reg. No. 46,292

In re application of: Hassan, et al.

Serial No.: 10/630,882

Examiner: NGUYEN, Trinh T.

Filed: July 29, 2003

Group Art Unit: 3644

For: METHOD AND DEVICE FOR
ALTERING THE SEPARATION
CHARACTERISTICS OF
AIR-FLOW OVER AN
AERODYNAMIC SURFACE VIA
INTERMITTENT SUCTION

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

RESUBMISSION OF SPECIFICATION PAGE 3 FILED JULY 29, 2003

Enclosed is a duplicate copy of page 3 of the specification from the original patent application filed with the U.S. Patent and Trademark Office on July 29, 2003.

Respectfully submitted,

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applying intermittent suction or intake of fluid through the exterior surface of an airfoil in a manner reducing or delaying flow separation over the airfoil. This technique requires less power than is required with constant suction
5 or constant blowing AFC techniques and provides for a greater reduction in drag as compared to oscillating suction/expulsion AFC methods.

In a first aspect of the invention, a device comprises an airfoil, a fluid (gas or liquid) inlet opening, a fluid
10 outlet opening, a pump, and first and second valves. The airfoil has an exterior surface and the fluid inlet opening extends through the exterior surface of the airfoil. The fluid outlet opening is separate from the fluid inlet opening. The pump is operatively connected to the fluid
15 inlet opening and to the fluid outlet opening and is configured and adapted to draw fluid into the fluid inlet opening and to expel fluid from the fluid outlet opening. The first valve is operatively connected between the fluid inlet opening and the pump and the second valve is
20 operatively connected between the pump and the fluid outlet opening. The first valve is configured and adapted to allow fluid to be drawn into the airfoil via the fluid inlet opening and to prevent fluid from being expelled from the airfoil via the fluid inlet opening. The second valve is